

REMARKS

Claims 1-19 are pending in this application. Claims 1, 16, 17 and 19 are independent claims. By this amendment, claims 1-17 are amended, and new claims 18 and 19 are added.

Support for the amendments to claims 1 and 16 can at least be found in Fig. 6 and in the specification on page 3.

Support for the amendment to claim 17 and for new claim 19 can at least be found in Fig. 7 and in the specification on page 3.

New claim 18 includes time/frequency resolution grid features which were apart of originally filed claim 1.

Reconsideration in view of the above amendments and following remarks is respectfully solicited.

Allowable Subject Matter

The Office Action indicates that claims 8, 9, 11 and 15 are objected to as being dependent on a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. However, applicants respectfully submit that all of claims 1-19 are allowable, for at least the reasons set forth below.

The Claims Satisfy The Requirements Of

35 U.S.C. §112, 2nd Paragraph

The Office Action reject claim 1 under 35 U.S.C. §112, 2nd paragraph. This rejection is respectfully traversed.

Applicants respectfully submit that the amendment to claim 1 obviates the rejection of claim 1 under 35 U.S.C. §112, 2nd paragraph.

Accordingly, withdrawal of the rejection of claim 1 under 35 U.S.C. §112, 2nd paragraph is respectfully solicited.

The Claims Define Patentable Subject Matter

The Office Action rejects claims 1-7, 10, 12-14 and 16-17 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,394,473 to Davidson (hereafter Davidson). This rejection is respectfully traversed.

Applicants respectfully submit that Davidson fails to teach or suggest each and every feature as set forth in the claimed invention.

Applicants respectfully point out that in the field of spectral band replication, an original signal is represented by an encoded version thereof, wherein the bandwidth of the encoded version is not equal to the bandwidth of the original signal. Instead, normally, the bandwidth of the encoded version is smaller than the bandwidth of the original signal.

For example, the encoded version does not include the high band of the original signal. The part of the bandwidth, which is not included in the encoded version of the original signal, but which is included in the original signal itself, is referred to as "certain frequency regions" in the present application, for example. Normally, only a coarse envelope information on the missing bandwidth, i.e., the certain frequency regions, is transmitted to the decoder. This results in a drastic bit rate reduction, which is especially suitable for transmission channels having only a limited transmission capacity such as broadcast channels, mobile telephone channels and so on.

At the decoder, the encoded version of the original signal is decoded so that a decoded audio signal is obtained, which naturally does not have the full bandwidth of the original signal but only has the bandwidth of the encoded version. Normally, the decoded

audio signal only has the low band and does not include the high band or, in the terms of the present application, does not include the certain frequency regions.

For example, a prior art SBR decoder reconstructs the missing bands by transposition using the whole decoded audio signal or parts thereof. This transposed signal is spectral-envelope adjusted by means of the coarse spectral envelope information for the high band or, in terms of the present application, the certain frequency regions to obtain a spectral-envelope adjusted signal, which is, then, added to the original signal so that an output signal is obtained which has the same (full) bandwidth of the original signal.

Nevertheless, only the low band or the bandwidth without the certain frequency regions is obtained from the decoded version, while the high band or certain frequency regions of the output signal is reconstructed by using the transposition technique and the spectral envelope information generated at the encoder-side for spectral envelope adjustment purposes.

In the present invention, on the encoder side, a statistical analysis of the input signal is performed to sample the spectral

envelope of the band, which is not transmitted to the decoder, not with a uniform time/frequency resolution but with a varying time resolution or a varying frequency resolution, the time/frequency resolution depending on the outcome of the statistical analysis.

In other words, a key aspect of the present invention is that the spectral envelope of the band, which is not encoded by the audio encoder, is sampled with varying time/frequency resolution based on the result of the transient detector, i.e., the means for performing the statistical analysis of the input signal, for example.

This feature at least produces data on the coarse spectral envelope representation for the certain frequency regions. The data generated by the inventive spectral envelope encoder is related to a varying time/frequency resolution. Therefore, not only is the data on the coarse spectral envelope representation for the certain frequency regions transmitted, but a control signal describing the varying time resolution or the varying frequency resolution is generated and transmitted.

For example, in the present application, at the decoder side, the bandwidth, which is not included in the output signal of the audio decoder 702 (see Fig. 7 of the present application) is

reconstructed by transposition (item 704) to obtain an SBR replicated signal for the certain frequency regions. The data on the coarse spectral envelope representation together with the control signal, i.e., the data on the varying time/frequency resolution, are then used for the spectral envelope adjustment of the SBR replicated signal for the certain frequency regions. Then, the spectral envelope adjusted signal at the output of the synthesis filter bank 709 in Fig. 7 is added, i.e., summed to the audio decoder 702 output signal to obtain a wide band signal as is shown in Fig. 7.

Davidson fails to teach or suggest that the spectral envelope of the band is sampled with varying time/frequency resolution. Davidson merely discloses adaptively selecting signal sample block lengths. However, Davidson fails to disclose that the data generated by the spectral envelope encoder is related to a varying time/frequency resolution. Furthermore, Davidson fails to teach or suggest not only that the data on the coarse spectral envelope representation for the certain frequency regions is transmitted, but also fails to teach that a control signal describing the varying time resolution or the varying frequency resolution is generated and transmitted.

According to MPEP §2131, "a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. Of California*, 814 F.2d 628, 631, 2 USPQ2d 1051 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ...claims." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913 (Fed. Cir. 1989). The elements must be arranged as required by the claims, but this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

Applicants respectfully submit that the Office Action has failed to establish the required *prima facie* case of anticipation because the cited reference, Davidson, fails to teach or suggest each and every feature as set forth in the claimed invention.

Applicants respectfully submit that independent claims 1, 16, 17 and 19 are allowable over Davidson for at least the reasons noted above.

As for each of the dependent claims not particularly discussed above, these claims are also allowable for at least the reasons set

forth above regarding their corresponding independent claims, and/or for the further features claimed therein.

Accordingly, withdrawal of the rejection of claims 1-7, 10, 12-14 and 16-17 under 35 U.S.C. §102(b) is respectfully solicited.

Conclusion

In view of the foregoing, Applicants respectfully submit that the application is in condition for allowance. Favorable reconsideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further would be desirable to place this application in better condition for allowance, the Examiner is invited to contact Carolyn T. Baumgardner (Reg. No. 41,345) at (703) 205-8000 to schedule a Personal Interview.

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), Applicant(s) respectfully petition(s) for a one (1) month extension of time for filing a reply in connection with the present application, and the required fee of \$120.00 is attached hereto.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment from or credit any overpayment to Deposit Account No. 02-2448 for any additional

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fees required under 37 C.F.R. §1.16 or under 37 C.F.R. §1.17;
particularly, the extension of time fees.

Respectfully submitted,
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